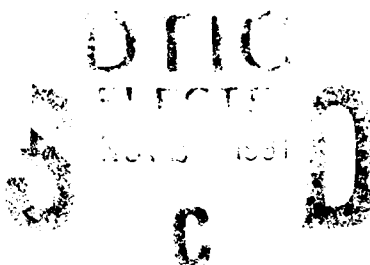


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TITLE: UTC-PAB NORMATIVE DATABASE (PABNORM)

PRINCIPAL INVESTIGATOR: Gary B. Reid, Ph.D.

CONTRACTING ORGANIZATION: Armstrong Aerospace Medical
Research Laboratory
Wright-Patterson AFB, Ohio 45433

REPORT DATE: November 26, 1990

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PREPARED FOR: U.S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND
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FOREWORD

For the protection of human subjects, the investigator(s) have adhered to policies of applicable Federal Law 45CFR56.

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3. Date of Report: 26 November 1990
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5. Address: Armstrong Aerospace Medical Research Laboratory
Wright-Patterson AFB, Ohio 45433
6. Telephone Nos: (513) 785-8749 AUTOVON 785-8749
7. Project Title: UTC-PAB Normative Database (PABNORM)
8. Current Staff with percent of effort on project:

Logicon Technical Services, Inc.
Mark Crabtree 33%
Ray Marcelo 1%
Jim Berlin 1%
Secretary .5%
Administration .5%

University of Oklahoma
Robert E. Schlegel 25%
Kirby Gilliland 25%
Research Assistants(2) 50%

9. Comments on administrative and logistical matters during the year:

A contract with the University of Oklahoma (UOK) was accomplished with a start date of 5 June 1990. Six Government-owned computer systems (Zenith Z-248) were configured with SRL LabPak boards and test battery software, tested, and shipped to UOK. A test protocol was approved by the UOK institutional Review Board for use of Human Subjects.

10. Summary of approximate Principal Investigator expenditures or commitments on contract to date (for the year):

Logicon Contract Support:	\$ 20,000
University of Oklahoma contract:	64,000
Unisys (Computer Equipment):	16,000
Total FY 90	\$100,000

11. Scientific Progress During the Past Year:

- (a) Contact was made with the new OMPAT BBS and was maintained throughout the year by logging on to the BBS no less than twice per week. New UTCB, WRAIR, CCAB, and NAMRL AGARD STRES Battery software was downloaded and installed on laboratory computer systems. Small amounts of data were collected at AAMRL using the tests from the WRAIR and the NAMRL AGARD STRES Batteries. The data seem comparable to that obtained with similar tasks from the CTS. A large scale data collection effort will be accomplished at UOK in order to confirm these findings.
- (b) Detailed specifications were written for three tasks from the Criterion Task Set so that they could be implemented in UTCB or the NAMRL AGARD STRES Battery. The tasks were: Spatial Processing, Grammatical Reasoning, and Mathematical Processing. The specifications for the Spatial Processing task were developed to the point that actual screens were constructed using the UTCB Authoring System. These screens were included in the body of the specifications text. The specifications text for all three tasks was uploaded to the OMPAT BBS for other task developers to use. Kathy Winter used some of the specifications in the development of the NAMRL AGARD STRES Battery.
- (c) An attempt was made to construct the Spatial Processing Task using UTCB. However, constructing all of the stimuli became a very laborious and error-prone process. A BASIC program was written that provided the coordinates for all of the stimuli. This program expedited test construction somewhat. However, as the size of the .XLB file was increased by adding more stimuli, a point was reached where the file no longer worked. It is unclear as to why this happened. No further work has been done on the development of the Spatial Processing task, using UTCB. A fully operational version of the task is available as part of the NAMRL AGARD STRES Battery.
- (d) An attempt was made to construct the Mathematical Processing Task using the UTCB Authoring System. Task development proceeded well until the .XLB file exceeded 47k Bytes in size. At that point, the file stopped working and can no longer be read by either the Authoring or Realtime systems. Eventually, the structure of this task will be compared to similar tasks that appear to work properly. A fully operational version of the task is available as part of the NAMRL AGARD STRES Battery.

(e) Six SRL LabPak boards were purchased to permit a large scale data collection effort using the WRAIR and NAMRL STRES Batteries. Four Zenith Z-248 computer systems (including EGA monitors) were configured with SRL LabPak boards and other required hardware, and test battery software. Two OEM joysticks, recommended by TNO, were ordered and will be tested at both AAMRL and the University of Oklahoma. The test site at the University of Oklahoma was visited in order to assist in the installation and initial operation of test battery software.

(f) A summary document was prepared to identify tasks from the various batteries that have previously had performance data collected as part of the Criterion Task Set database effort. The appropriate data have been extracted for ease of use in studies using the other batteries.

(g) Three UTPAB .XLB files (XLBLPT.ZIP, XLBIPT.ZIP, and XLBTCA.ZIP) developed at USAFSAM were download from the BBS. These will be tested and examined to determine how the authors avoided the problems mentioned in (c) and (d) above.

(h) A survey was constructed and distributed to users of the CTS. The purpose of the survey was to determine how the CTS is being used, and what improvements could be made to enhance it. Some of the questions were aimed at finding out what constitutes a good test battery. Generally, researchers were very positive about the CTS, and suggested that it be made available in an MS-DOS version to facilitate wider distribution.

12. Plans for next Quarter:

(a) Evaluate downloaded .XLB files.

(b) Continue development of UTPAB versions of Grammatical Reasoning, Mathematical Processing, and Spatial Processing.

(c) Perform research to compare performance on tasks selected from the WRAIR, NAMRL AGARD STRES, and CTS Batteries.

(d) Complete a functional review of NAMRL STRES and WRAIR batteries and document the evaluation.

(e) Prepare a follow-up to the CTS Survey to find out more about successes and failures of test battery applications.

(f) Complete the formal test plan for the UOK effort and begin data collection at UOK early in January.

COORDINATION: HEG

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